**CLAIMS**

1. A garment comprising:

a protective outer layer; and

retroreflective material formed over a portion of the protective outer layer in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material.

2. The garment of claim 1, wherein a surface area of the non-retroreflective regions comprises at least 20% of a total surface area of the retroreflective material.

3. The garment of claim 2, wherein a surface area of the non-retroreflective regions comprises at least 25% of a total surface area of the retroreflective material.

4. The garment of claim 3, wherein a surface area of the non-retroreflective regions comprises at least 50% of a total surface area of the retroreflective material.

5. The garment of claim 1, wherein a surface area of each retroreflective region is less than four square centimeters.

6. The garment of claim 5, wherein a surface area of each retroreflective region is less than one square centimeter.

7. The garment of claim 1, wherein the retroreflective material has a reflective brightness greater than 50 candelas/(lux * meter$^2$).

8. The garment of claim 7, wherein the retroreflective material has a reflective brightness greater than 250 candelas/(lux * meter$^2$).

9. The garment of claim 1, wherein the garment comprises an outer shell of a firefighter outfit.

10. The garment of claim 1, wherein the garment comprises an outer shell of a multi-layer thermal control outfit.

11. The garment of claim 1, wherein vapor permeability through the portion formed with retroreflective material is substantially equal to vapor permeability through the the protective outer layer without retroreflective material.

12. The garment of claim 1, wherein the non-continuous pattern forms a checkerboard-like configuration.

13. The garment of claim 12, wherein the checkerboard-like configuration includes approximately 50 percent retroreflective regions and approximately 50 percent non-retroreflective regions.

14. The garment of claim 1, wherein the non-continuous pattern forms a stripe-like configuration, wherein the non-retroreflective regions comprise stripe-like regions that separate the retroreflective regions.

15. The garment of claim 14, wherein the retroreflective regions comprise approximately 66 percent of a surface area of the retroreflective material.

16. The garment of claim 1, wherein non-retroreflective regions comprise triangular shaped regions.

17. The garment of claim 16, wherein the retroreflective regions also comprise triangular shaped regions.

18. The garment of claim 16, wherein the retroreflective regions comprise approximately 75 percent of a surface area of the retroreflective material.

19. The garment of claim 16, wherein the retroreflective regions comprise approximately 50 percent of a surface area of the retroreflective material.

20. The garment of claim 1, wherein the retroreflective regions comprise circular shaped regions within the non-retroreflective regions.

21. The garment of claim 20, wherein the retroreflective regions comprise approximately 50 percent of a surface area of the retroreflective material.

22. The garment of claim 1, wherein the portion of the protective outer layer that includes the retroreflective material includes the total surface area of the protective outer layer.

23. The garment of claim 1, wherein the retroreflective material is also florescent.

24. A garment comprising:

a protective outer layer; and

retroreflective material formed over a portion of the protective outer layer in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that vapor permeability through the portion formed with retroreflective material is substantially equal to vapor permeability through the protective outer layer without the retroreflective material.

25. A garment comprising

a protective outer layer; and

retroreflective material formed over a first portion of the protective outer layer in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that thermal decay through the first portion is substantially equal to thermal decay through a second portion of the protective outer layer not covered by retroreflective material, wherein a surface area of the non-retroreflective regions comprises at least 20% of a total surface area of the retroreflective material, wherein a surface area of each retroreflective region is less than four square centimeters and wherein the retroreflective material has a reflective brightness greater than 50 candelas/(lux * meter$^2$).

26. The garment of claim 25, wherein a surface area of the non-retroreflective regions comprises at least 25% of a total surface area of the retroreflective material, wherein a surface area of each retroreflective region is less than one square centimeter and wherein the retroreflective material has a reflective brightness greater than 250 candelas/(lux * meter$^2$).

27. A protective outfit comprising:

a protective outer layer including retroreflective material formed over a portion of the protective outer layer in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material.

a second layer adjacent the protective outer layer; and

a third layer adjacent the second layer.

28. The protective outfit of 27, wherein the protective outfit is a firefighter outfit, and wherein the second layer is a moisture barrier and the third layer is a thermal liner.

29. The protective outfit of claim 27, wherein the protective outfit is a multi-layer thermal control outfit, and wherein the second layer is liquid retaining layer and the third layer is a waterproof vapor permeable layer.

30. The protective outfit of claim 27, wherein vapor permeability through the portion formed with retroreflective material is substantially equal to vapor permeability through the protective outer layer without retroreflective material.

31. An article comprising:

a first material; and

retroreflective material formed on the first material according to a non-continuous pattern defining retroreflective regions and non-retroreflective regions, wherein the retroreflective material is arranged such that it does not substantially decrease thermal decay through the article.

32. The article of claim 31, wherein the article comprises a retroreflective patch for use on a garment.

33. The article of claim 31, wherein the first material is a cloth backing.

34. The article of claim 31, wherein a surface area of the non-retroreflective regions comprises at least 20% of a total surface area of the retroreflective material.

35. The article of claim 34, wherein a surface area of the non-retroreflective regions comprises at least 25% of a total surface area of the retroreflective material.

36. The article of claim 35, wherein a surface area of the non-retroreflective regions comprises at least 50% of a total surface area of the retroreflective material.

37. The article of claim 31, wherein a surface area of each retroreflective region is less than four square centimeters.

38. The article of claim 37, wherein a surface area of each retroreflective region is less than one square centimeter.

39. The article of claim 31, wherein the retroreflective material has a reflective brightness greater than 50 candelas/(lux * meter$^2$).

40. The article of claim 39, wherein the retroreflective material has a reflective brightness greater than 250 candelas/(lux * meter$^2$).

41. The article of claim 31, wherein the retroreflective material is arranged such that it does not substantially decrease vapor permeability through the article.

42. The article of claim 31, wherein the non-continuous pattern forms a checkerboard-like configuration.

43. The article of claim 42, wherein the checkerboard-like configuration includes approximately 50 percent retroreflective regions and approximately 50 percent non-retroreflective regions.

44. The article of claim 31, wherein the non-continuous pattern forms a stripe-like configuration, wherein the non-retroreflective regions comprise stripe-like regions that separate the retroreflective regions.

45. The article of claim 44, wherein the retroreflective regions comprise approximately 66 percent of a surface area retroreflective material.

46. The article of claim 31, wherein non-retroreflective regions comprise triangular shaped regions.

47. The article of claim 46, wherein the retroreflective regions also comprise triangular shaped regions.

48. The article of claim 47, wherein the retroreflective regions comprise approximately 75 percent of a surface area of the retroreflective material.

49. The article of claim 47, wherein the retroreflective regions comprise approximately 50 percent of a surface area of the retroreflective material.

50. The article of claim 31, wherein the retroreflective regions comprise circular shaped regions within the non-retroreflective regions.

51. The article of claim 31, wherein the retroreflective regions comprise approximately 50 percent of a surface area of the retroreflective material.

52. An article comprising:

a first material; and

retroreflective material formed on the first material according to a non-continuous pattern defining retroreflective regions and non-retroreflective regions,

wherein the retroreflective material is arranged such that it does not substantially decrease vapor permeability through the article.

53. An article comprising

a first material; and

retroreflective material formed on the first material according to a non-continuous pattern defining retroreflective regions and non-retroreflective regions, wherein the retroreflective material is arranged such that it does not substantially decrease thermal decay through the article, wherein a surface area of the non-retroreflective regions comprises at least 20% of a total surface area of the retroreflective material, wherein a surface area of each retroreflective region is less than four square centimeters and wherein the retroreflective material has a reflective brightness greater than 50 candelas/(lux * meter$^2$).

54. The article of claim 53, wherein a surface area of the non-retroreflective regions comprises at least 25% of a total surface area of the retroreflective material, wherein a surface area of each retroreflective region is less than one square centimeter and wherein the retroreflective material has a reflective brightness greater than 250 candelas/(lux * meter$^2$).

55. A method comprising:

screen printing an adhesive pattern on a protective garment;

pressing retroreflective beads on the adhesive pattern to create a retroreflective pattern that is arranged such that vapor permeability through the protective garment in portions having the retroreflective pattern is substantially the same as vapor permeability through the protective garment in portions of the garment that do not have the retroreflective pattern.

56. The method of claim 55, further comprising creating the retroreflective pattern to have a reflective brightness greater than 50 candelas/(lux * meter$^2$).

57. The method of claim 55, wherein screen printing an adhesive pattern on a protective garment comprises screen printing an adhesive pattern on an outer shell of a firefighter outfit.

58. The method of claim 55, further comprsing:

pressing retroreflective beads on the adhesive pattern to create a retroreflective pattern that is arranged such that thermal decay through the protective garment in portions having the retroreflective pattern is substantially the same as thermal decay through the protective garment in portions of the garment that do not have the retroreflective pattern.

59. A method comprising:

mixing retroreflective beads into an adhesive material; and

screen printing a vapor permeable pattern on a protective garment using the mixture such that vapor permeability through the protective garment in portions screened with the vapor permeable pattern is substantially the same as vapor permeability through portions of the protective garment that are not screened with the vapor permeable pattern.

60. The method of claim 59, wherein screen printing a vapor permeable pattern on the protective garment comprises screen printing the vapor permeable pattern on an outer shell of a firefighter outfit.

61. The method of claim 60, further comprising:

screen printing the vapor permeable pattern on a protective garment using the mixture such that thermal decay through the protective garment in portions screened with the vapor permeable pattern is substantially the same as thermal decay through portions of the protective garment that are not screened with the vapor permeable pattern.

62. A method comprising:

depositing beads onto a substrate;

coating exposed surfaces of the beads with a reflective material;

applying an adhesive on the beads to create a tape-like substance;

cutting a non-continuous pattern vapor permeable pattern into the tape-like substance;

pressing the tape-like substance having the non-continuous vapor permeable pattern onto a material;

applying heat and pressure on the tape-like substance having the non-continuous vapor permeable pattern; and

peeling back the substrate.